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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/636,027	08/06/2003	Hyeong-Jun Kim	4591-331	1037

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EXAMINER

PRENTY, MARK V

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/636,027

Applicant(s)

KIM, HYEONG-JUN

Examiner

MARK V PRENTY

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 21-34 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-20 is/are allowed.
- 6) ☒ Claim(s) 1, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 2-6 and 9-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

This Office Action is in response to the response filed on May 24, 2004.

Applicant's election without traverse of Group I, claims 1-20, is acknowledged.

Claims 21-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention.

Claims 1, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mercaldi (United States Patent 6,473,328) together with Tracy et al. (United States Patent 5,902,690 – hereafter Tracy).

With respect to independent claim 1, Mercaldi discloses a magnetoresistive memory device (see the entire patent, particularly the Fig. 9 disclosure) comprising: a conductive pattern 72 disposed over a substrate 70 with an insulation layer 71 therebetween; a magnetoresistive memory cell 81-83 disposed on the conductive pattern; and an interlayer dielectric layer 80 disposed on the insulation layer to surround the magnetoresistive memory cell.

The difference between claim 1 and Mercaldi is claim 1's interlayer dielectric layer comprises a high permeability magnetic material layer (Mercaldi does not disclose the composition of its interlayer dielectric layer 80).

Tracy teaches surrounding magnetoresistive memory cells with a high permeability magnetic material layer in order to advantageously focus internally generated magnetic fields (see the entire patent).

It would have been obvious to one skilled in this art to form Mercaldi's magnetoresistive memory device's interlayer dielectric layer 80 of high permeability

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magnetic material in order to advantageously focus internally generated magnetic fields, as taught by Tracy.

Claim 1 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Mercaldi together with Tracy.

With respect to dependent claim 7, Tracy's high permeability magnetic material layer is formed of Ni-Zn-Ferrite, Mn-Zn-Ferrite, MnFeO, CuFeO, FeO or NiFeO (see the entire patent, including the Abstract, for example).

Claim 7 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Mercaldi together with Tracy.

With respect to dependent claim 8, Mercaldi's magnetoresistive memory cell comprises a lower ferromagnetic layer pattern 81, a nonmagnetic layer pattern 82, and an upper ferromagnetic layer pattern 83 that are sequentially stacked on the conductive pattern 72.

Claim 8 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Mercaldi together with Tracy.

Claims 2-6 and 9-14 are objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15-20 are allowable over the prior art of record.

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The prior art of record does not disclose or suggest the allowable magnetoresistive memory devices taken as a whole, including the magnetic focusing spacers.

Kim (United States Patent Application Publication US 2004/0061166) is related to this application.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.


Mark V. Prenty
Primary Examiner